



Cooperative Agricultural Pest Survey

A Program to Detect Plant Pests And Diseases of Regulatory Concern

Bradley A. Danner
State Survey Coordinator
FDACS-DPI-CAPS

Lilliam Otero Pujol
Pest Survey Specialist
FDACS-DPI-CAPS

Phellicia Perez
Tomato Commodity Survey
FDACS-DPI-CAPS

Max Carfagno
Tomato Commodity Survey
FDACS-DPI-CAPS



Justice Diamond
GIS/Mapping Specialist
FDACS-DPI-CAPS

Krystal Ashman
Identifier
FDACS-DPI-CAPS

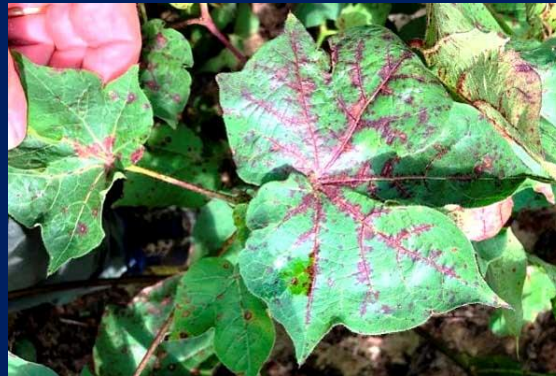
Robert Leahy
Pest Survey Specialist
USDA-CAPS

Douglas Restom Gaskill
Pest Survey Specialist
USDA-CAPS

Scott Weihman
Pest Survey Specialist
USDA-CAPS



Tomato Brown Rugose Fruit
Virus (ToBRFV)



"Cotton Blue" disease (Cotton leafroll
dwarf virus (CLRDV)



Black Bean Bug
(*Brachyplatys subaeneus*)



Asian bean thrips
(*Megalurothrips usitatus*)

Special Survey

Tomato Brown Rugose Fruit Virus (ToBRFV), "Cotton Blue" disease (Cotton leafroll dwarf virus (CLRDV)), Asian bean thrips (*Megalurothrips usitatus*) and Black Bean Bug (*Brachyplatys subaeneus*)



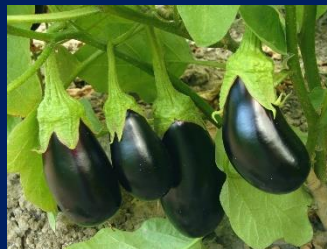
Tomato Brown Rugose Fruit Virus (ToBRFV)

ToBRFV Host Plants

☐ Tomato (*Solanum lycopersicum*) and Pepper (*Capsicum* sp.)

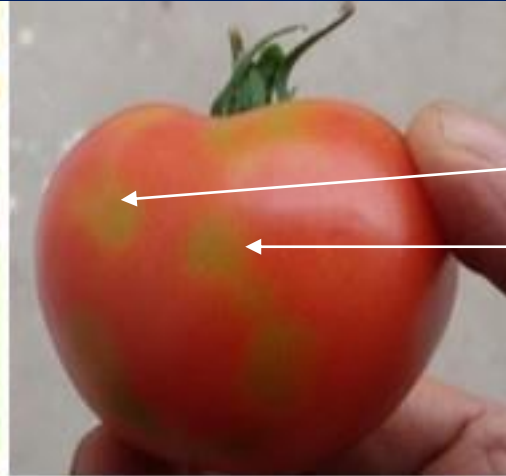


Eggplant (*Solanum melongena*) doubtful host



Experimentally transmitted to relatives: *Chenopodium* spp, *Chenopodium* spp, *Nicotiana* spp. and *Petunia* spp

ToBRFV Symptoms



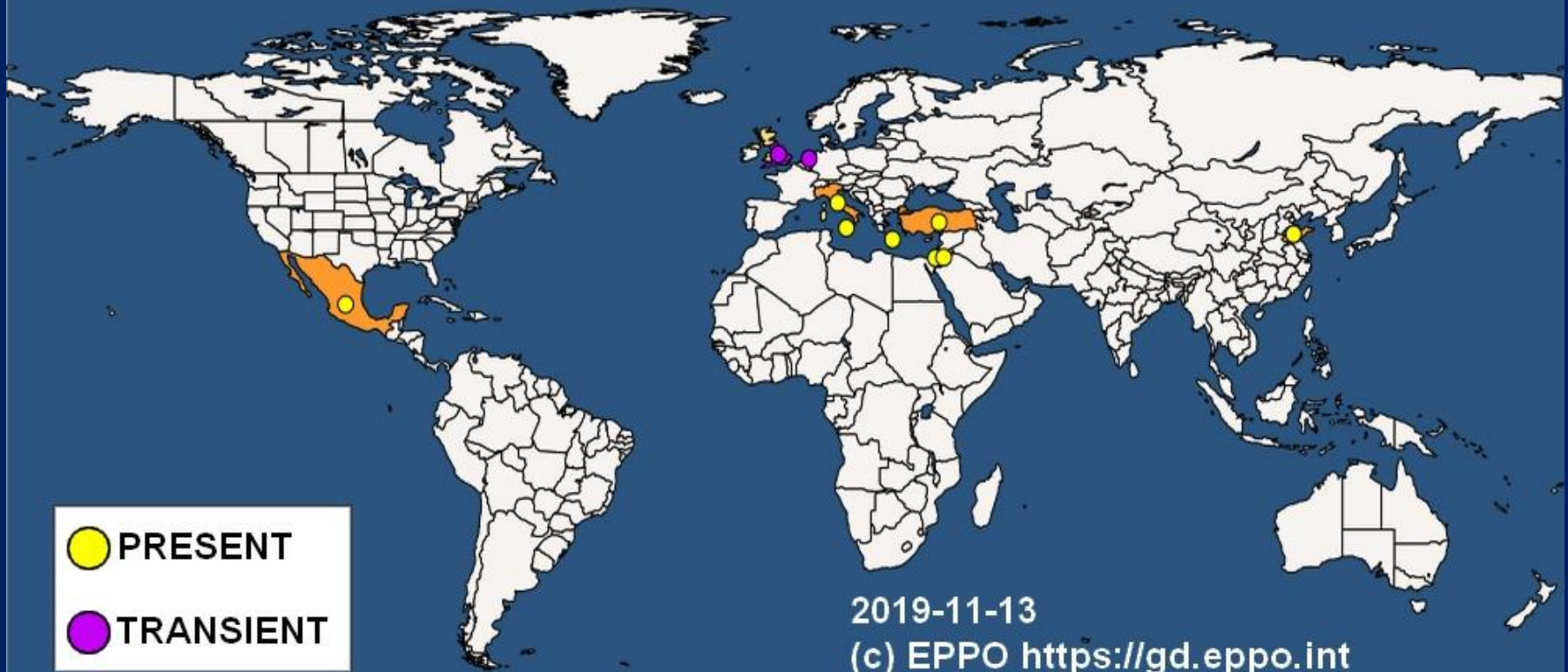
yellow spots and
brown rugose
symptoms on fruit,





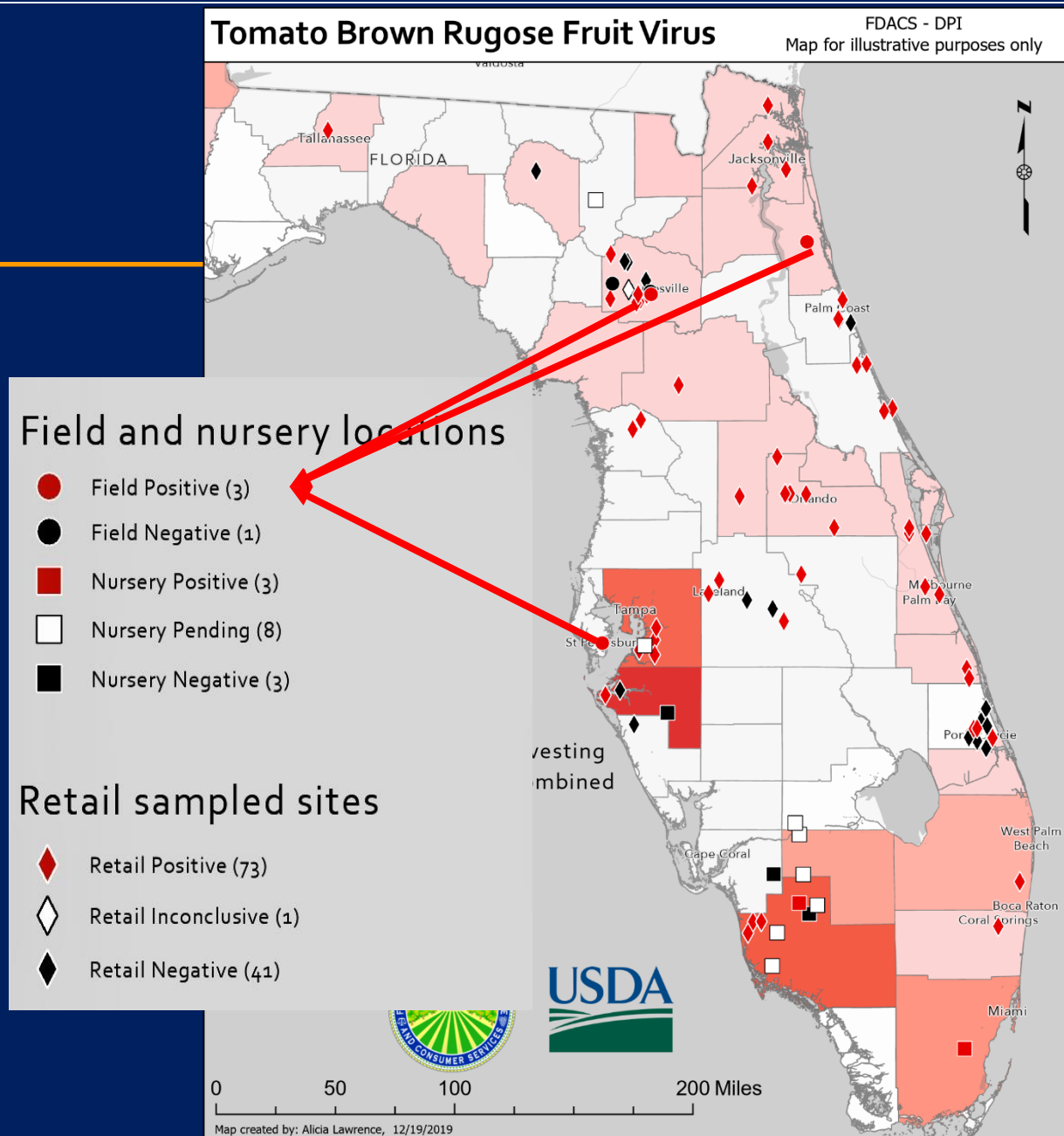
ToBRFV World Distribution

Tomato brown rugose fruit virus (TOBRFV)



ToBRFV Florida

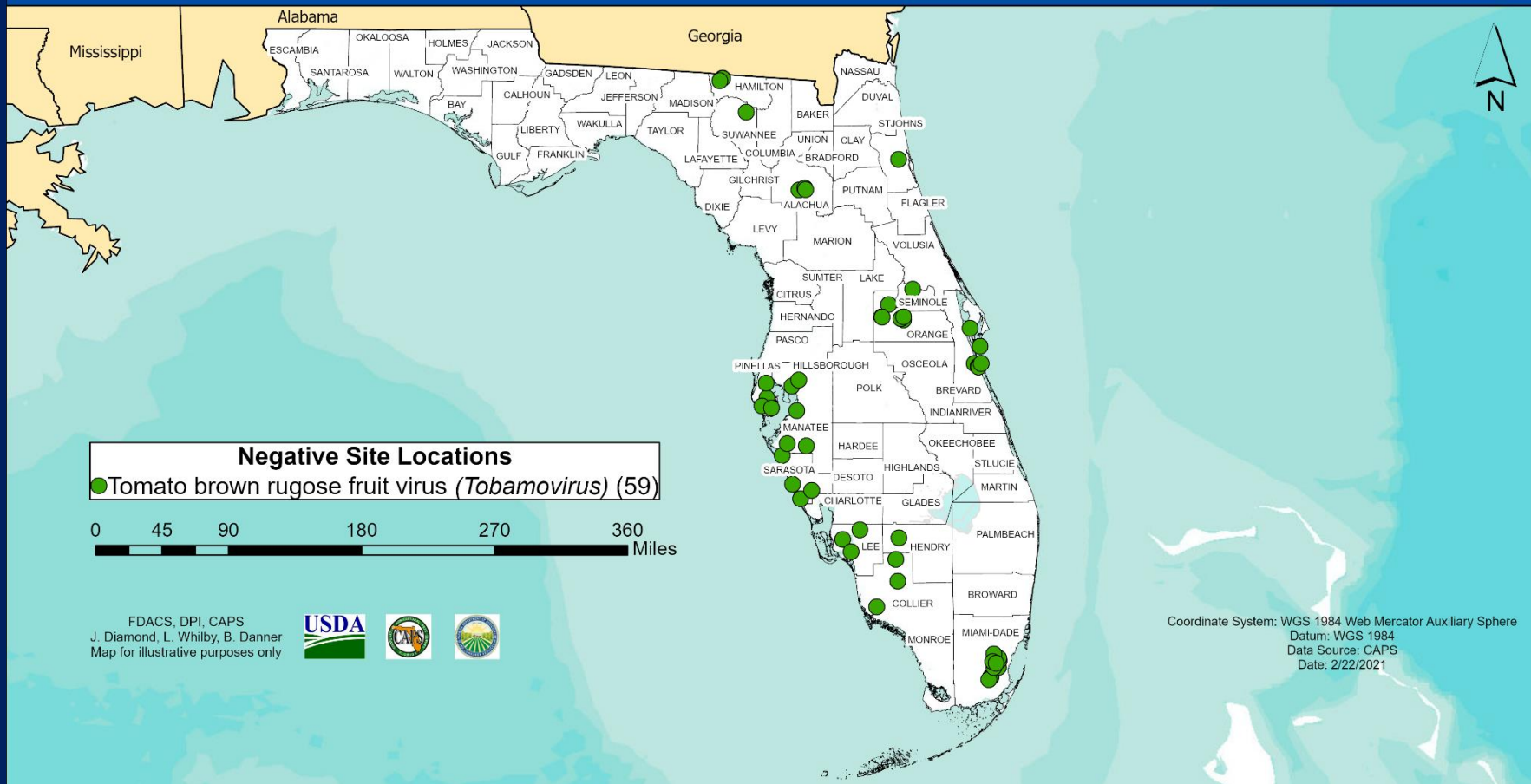
2019



ToBRFV Florida 2020



Tomato Commodity Survey 2020 - Tobamovirus



ToBRFV



Shipment Disposition Summary for Fresh Commodities Dec 1, 2020 to Dec 31, 2020

Commodity – Type	Origin	Location	Quantity	Units of Measure	# Shipments
Tomato – FV	Mexico	FL Port Manatee CBP	76,203	Kilogram	5
Tomatillo – FV	Mexico	FL Panama City CBP	11,958	Kilogram	77
Pepper – FV	Israel	FL Miami Air CBP	8,405	Kilogram	3
Lycopersicon sp. – PM	Israel	FL Miami Air CBP	24	Kilogram	5

Source: Courtesy of Biological Threat Advisory Group (BTAG)



“Cotton Blue” disease
(Cotton leafroll dwarf virus (CLRDV))

CBD (Cotton leafroll dwarf virus CLRDV)

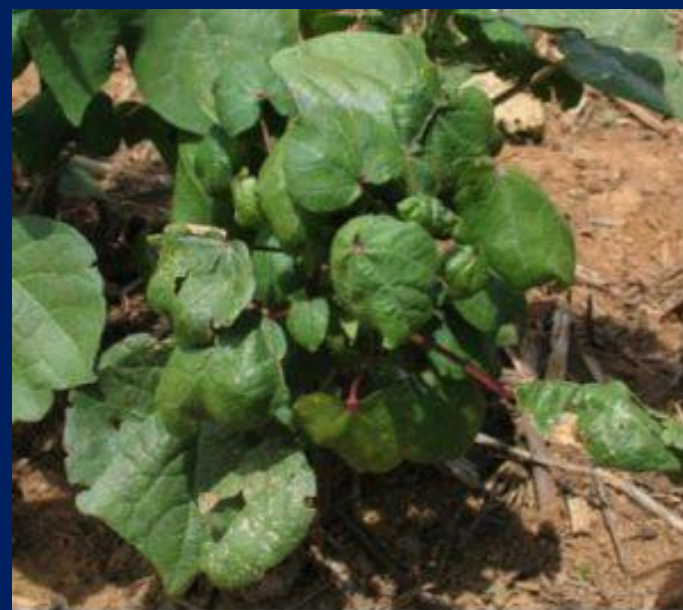


- ❑ Emerging disease of cotton (*Gossypium hirsutum* L.) in the United States
- ❑ Causal agent: (Cotton leafroll dwarf virus; CLRDV).
- ❑ Vector: *Aphis gossypii*.

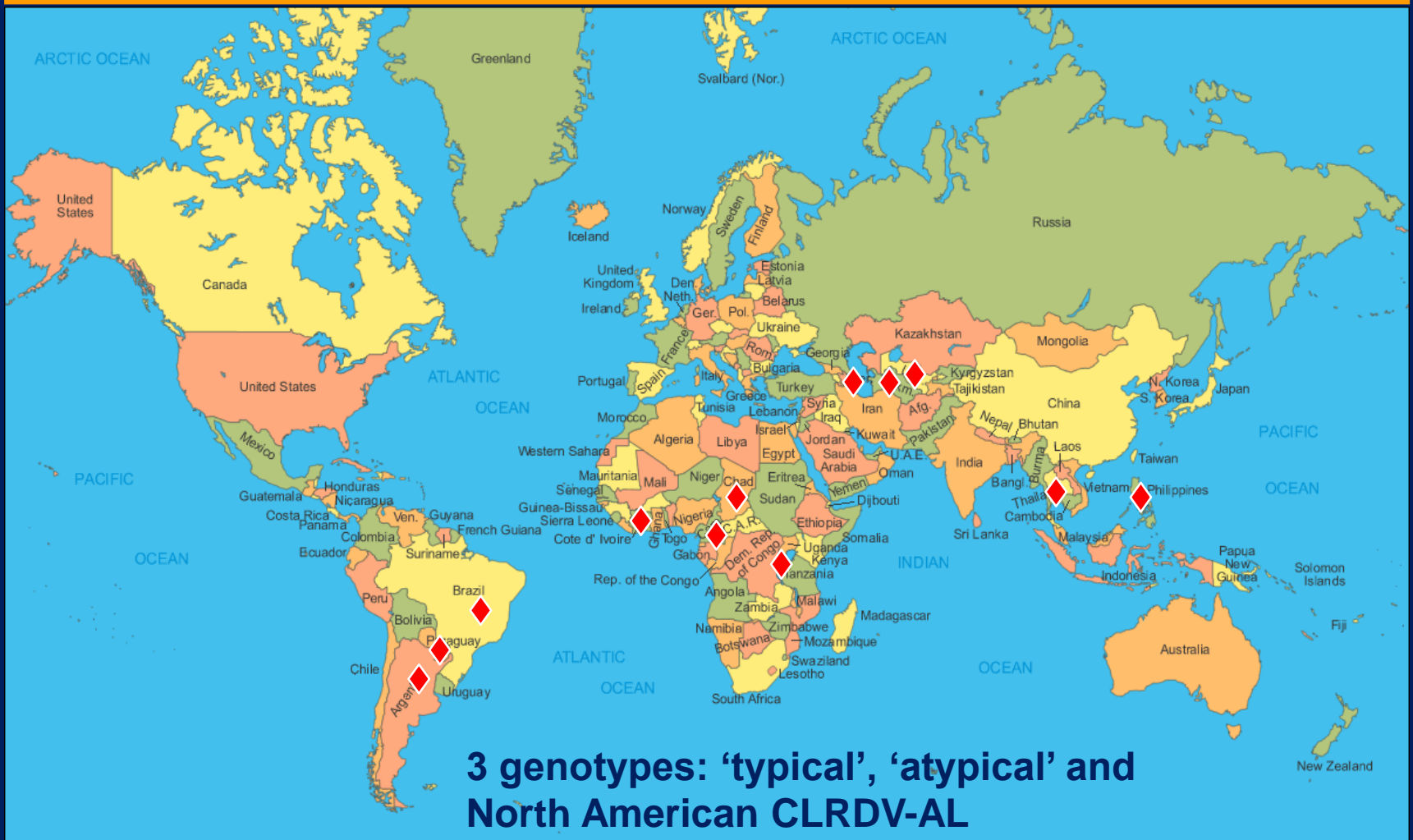


Henbit
(*Lamium
amplexicaule*)





CBD (Cotton leafroll dwarf virus CLRDV) World Distribution



CBD (Cotton leafroll dwarf virus CLRDV) Distribution USA

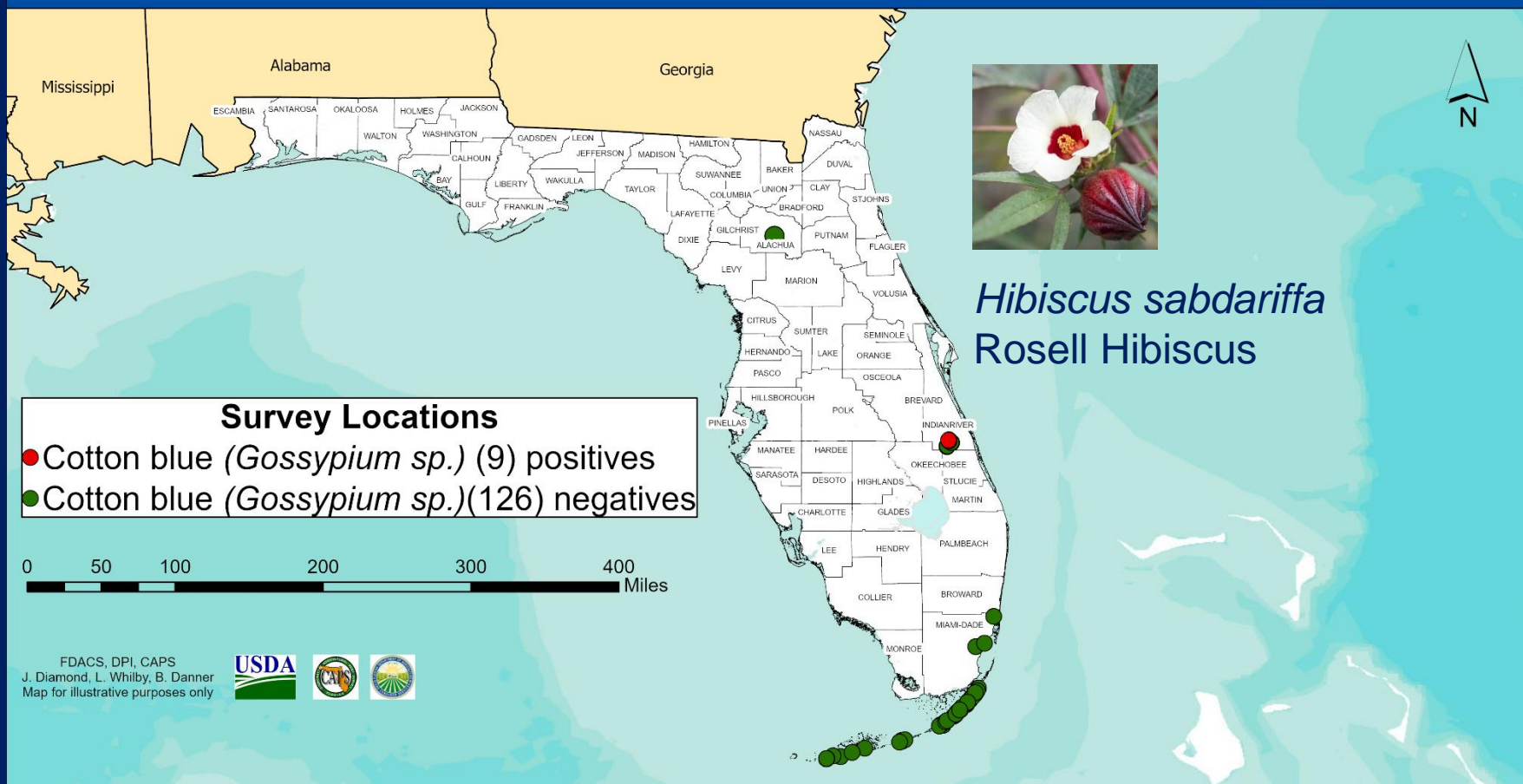


- Kansas (Ali and Mokhtari 2020),
- **Alabama** (Avelar *et al*, 2019),
- Mississippi (Aboughanem-Sabanadzovic *et al*. 2019),
- Georgia (Tabassum *et al*. 2019),
- North Carolina (Huseth A. 2019)
- Texas (Alabi *et al.*, 2019)
- Florida in 2019, (reported by F. B. Iriarte *et al*, 2020)

CBD (Cotton leafroll dwarf virus CLRDV) 2020



Cotton Blue Survey 2020 - *Gossypium* sp.





Asian bean thrips on flower
Photo: KoKo Maung Bugwood



Photo by Michael Herbert, Glades Crop Care, Inc.

Asian bean thrips

Megalurothrips usitatus (Bagnall)

ABT

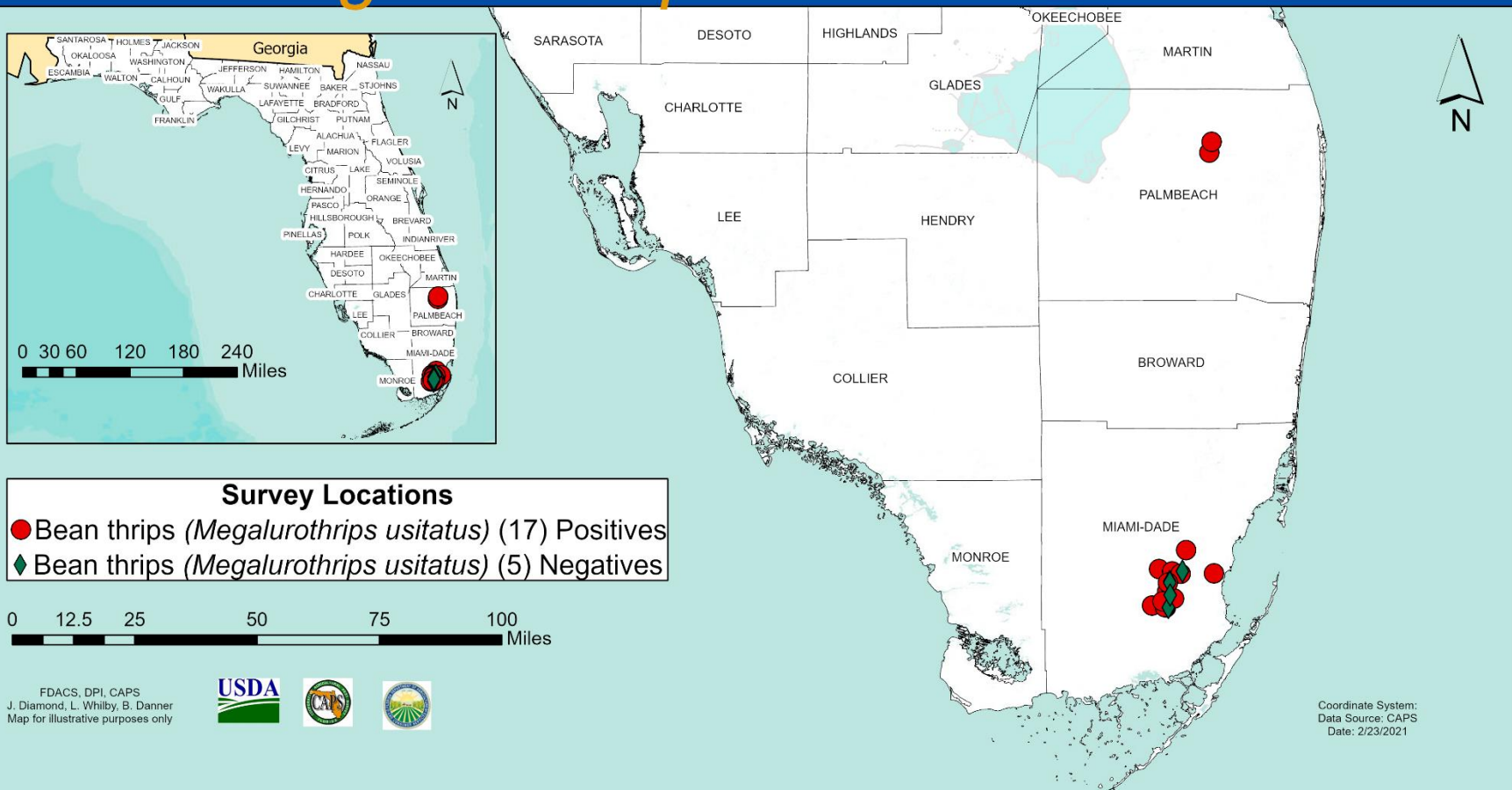
World Distribution



ABT Florida



Megalurothrips usitatus 2020



ABT HOSTS



Phaseolus vulgaris (Snap beans). Preferred



Glycine max (Soybean)



Arachis hypogaea (Peanuts)



Solanum tuberosum
(Potato)

Megalurothrips Identification

Light 3rd antennal segment

Light brown males



Black females



Banded forewings with white base clearly evident in living individuals



The DNA work indicated that the Florida population is part of strain widespread throughout India, South East Asia and China.

Megalurothrips Identification

- Other thrips are often found in bean flowers, but most of them differ in color from both sexes of *M. usitatus*



Western Flower
Thrips
Frankliniella
occidentalis



Florida Flower
Thrips
Frankliniella
bispinosa



Melon
Thrips
Thrips
palmi



**Asian Flower
Thrips**
Megalurothrips
usitatus

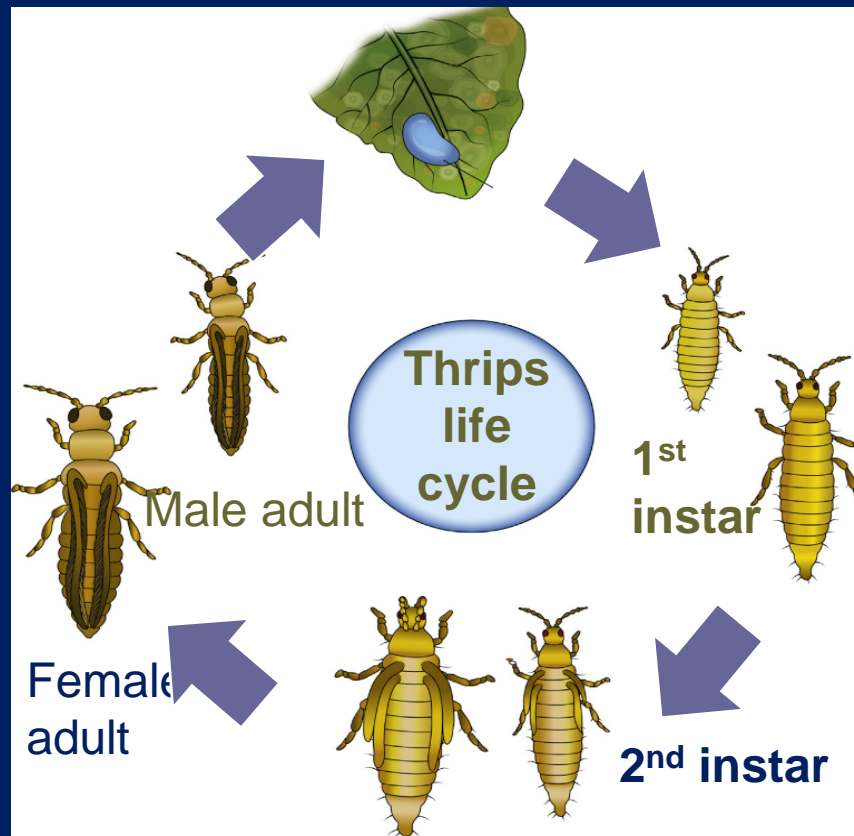


Frankliniella
insularis

Thrips life cycle

100-200
eggs per
lifetime

Adults live
15-20 days



Hatch after 3
days

Larval stages
last 3-4 days

Pupal stages
last 2-3 days

Pupal stages
(do not feed)

Generation
cycle: between
30 to 40 days

Damage to Beans

- All the damage is by direct feeding by larvae and adults.
- This species is not known to transmit tospoviruses
- Every part of the plant is affected, except the roots



Collecting Megalurothrips



tray



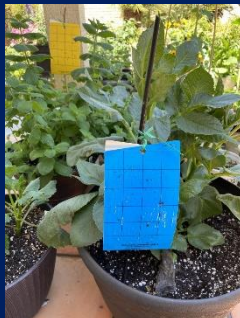
aspirator



aspirator with
lawn mower gas
filter and dropper
tip



brush



Natural enemies of thrips



Minute pirate bugs



Bigeyed bugs



Predatory mites



The curious case of

Black Bean Bug (*Brachyplatys subaeneus*)

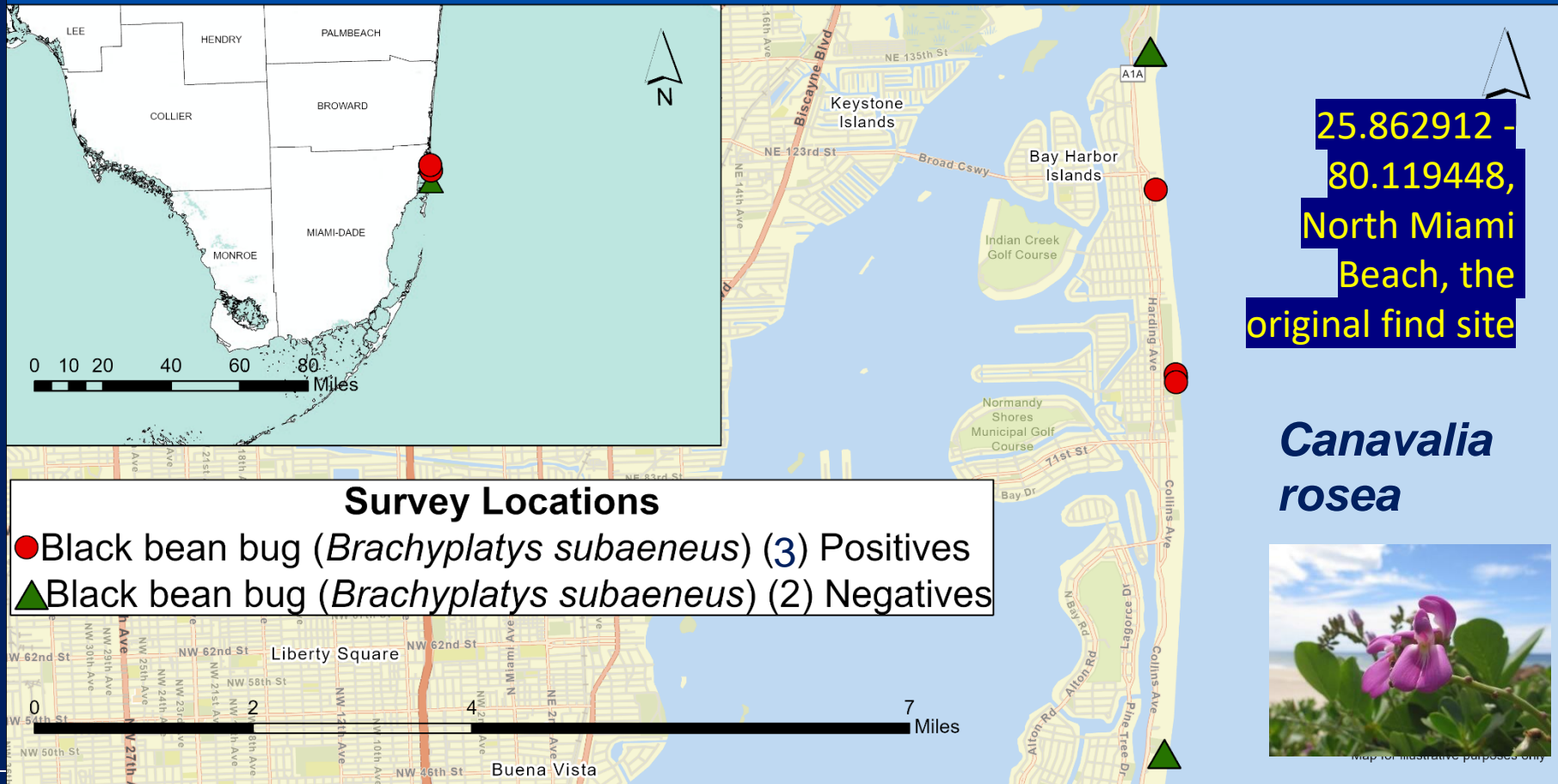
BBB (*Brachyplatys subaeneus*) World Distribution



BBB (*Brachyplatys subaeneus*)



Black Bean Bug - *Brachyplatys subaeneus* 2020



Black Bean Bug (*Brachyplatys subaeneus*)



Pictures courtesy of: Bertalina Muino from Tobacco Institute of Cuba with the Collaboration of the Plant Health Ministry of Panama



Black Bean Bug (*Brachyplatys subaeneus*)



Phaseolus spp.



Cajanus cajan (Pigeon peas)



Glycine max (Soybean)



Vigna spp. (Cowpea)

Canavalia rosea.
(Beach bean)



BBB

(Brachyplatys subaeneus)



Plant family	Genus and species, Author	Common name	Notes, Source
Araliaceae	<i>Schefflera actinophylla</i> (Endl.) Harms	schefflera	Western Hemisphere record (Aiello et al. 2016)
Arecaceae	<i>Bactris gasipaes</i> Kunth	peach palm	Western Hemisphere record (Aiello et al. 2016)
Asteraceae	<i>Mikania micrantha</i> Kunth	mile-a-minute vine, climbing hempweed	Asia (Añino et al. 2020)
Cannabaceae	<i>Cannabis sativa</i> L.	hemp	Asia (Añino et al. 2020)
Convolvulaceae	<i>Ipomoea batatas</i> (L.)	sweet potato	Asia (Añino et al. 2020)
Malvaceae	<i>Corchorus capsularis</i> L.	white jute, jute	Asia (Añino et al. 2020)
Poaceae	<i>Oryza sativa</i> L.	rice	Asia (Añino et al. 2020)
Poaceae	<i>Saccharum officinarum</i> L.	sugarcane	Asia (Añino et al. 2020)
Poaceae	<i>Zea mays</i> L.	corn	Western Hemisphere record (Añino et al. 2020)
Polygonaceae	<i>Coccoloba uvifera</i> (L.) L.	sea grape	Reported here
Solanaceae	<i>Solanum tuberosum</i> L.	potato	Asia (Añino et al. 2020)



Thanks to:

- ❑ *Brad Danner CAPS*
- ❑ *Cyndi Moncrief CAPS*
- ❑ *Justice Diamond CAPS*
- ❑ *Felipe Soto-Adames Ph.D FDACS Gainesville*
- ❑ *Phellicia Perez CAPS*
- ❑ *the special collaboration of Bertalina Muino from the Tobacco Institute Research of Cuba*
- ❑ *And others...*

Cooperative Agricultural Pest Survey



What are your thoughts?

What other pests use these pathways?

Are there resources not being utilized?

How do we improve?

Thank You!

